REMARKS

Claims 14-32 are pending in the application. Claims 1-13 and 36 have been withdrawn from consideration as directed to a non-elected invention and are hereby canceled, without prejudice. Claims 14-35 were rejected. Claims 33-35 are also hereby canceled, without prejudice.

Restriction/Election

The restriction requirement and telephone election of Group II, claims 14-35 is acknowledged and affirmed. Claims 1-13 and 36, withdrawn from consideration as directed to a non-elected invention, are hereby canceled, without prejudice.

Claim rejection under 35 U.S.C. §112

Claim 29 has been amended to address the noted rejection under 35 U.S.C. §112, second paragraph, by clarifying the relative position of the recited components. Withdrawal of the rejection in view of this amendment is respectfully requested.

Claim rejections under 35 U.S.C. §102 and 103

Claims 14-22 and 24-32 were rejected under 35 U.S.C. §102(e) as being anticipated by commonly-assigned US Publication No. 2002/0034688 A1 of Chu et al. (Chu).

The pending claims relate to the fabrication of a protective interlayer between the active metal electrode and the polymer electrolyte of an electrochemical device component structure. The interlayer comprises a material conductive to ions of the active metal and chemically compatible with the active metal and the polymer electrolyte, and the material is selected from the group consisting of nitrides, phosphides and halides of the active metal and precursors thereof. The forming of the laminate comprises forming a layer of a material selected from the group consisting of a protective interlayer material or a precursor for a protective interlayer material on the polymer electrolyte, wherein the protective interlayer material and precursors are selected from the group consisting of active metal nitrides, active metal phosphides, and active metal halides, metal nitrides, metal phosphides, metal halides, red phosphorus, amines, phosphines, borazine ($B_3N_3H_6$), and triazine ($C_3N_3H_3$); and (b) applying an active metal to the protective interlayer material or precursor for the protective interlayer material on the polymer electrolyte. In order to focus the issues in hopes of expediting the present prosecution, claim14 has been amended to incorporate the subject matter of original claims 15 and 16 relating to the forming of the laminate and the composition of the protective interlayer or precursor materials used in the method. Accordingly, original claims 15, 16 and 33-35 have been canceled, without prejudice and the dependencies of other dependent claims have been adjusted appropriately.

Chu describes work developed by the assignee of the present application focusing on glassy or polymeric barrier layers useful to protect metal electrodes in electrochemical cells (see e.g., paragraph 14). The Office Action references paragraphs 69, 66 and 68 for the disclosure of barrier layers comprising nitrides, phosphides and halides, respectively; paragraphs 57 and 72 for barrier layer precursors; and paragraph 71 for a barrier layer composed on Li_3N. However, it is respectfully noted that in each of these instances, the barrier layer described is a glassy or polymeric material that may incorporate on e of the claimed species (e.g., nitrides, phosphides or halides) within its structure. Paragraphs 66 through 69 describe barrier layers composed of glass that are doped with various species. Paragraphs 70-72 describe polymeric barrier layers. To the extent that these glassy and polymeric barrier layers contain species (e.g., nitrides, phosphides or halides) of the presently claimed interlayer or precursor materials those materials are incorporated (e.g., doped or covalently bound) in the structure of the polymer or glass and are not the chemical species recited in the claims. For example, in paragraph 71 it is clearly stated that "Examples of materials that may be suitable as polymeric barrier layers include compounds that contain nitrogen and/or phosphorus in the polymer backbone or sidechain [emphasis added]."

As noted above, the pending claims (independent claim 14 and claims 15-31 which depend directly or indirectly from it) recite the fabrication of a protective interlayer between the active metal electrode and the polymer electrolyte of an electrochemical device component structure by forming a layer of a material selected from the group consisting of a protective interlayer material or a precursor for a protective interlayer material on the polymer electrolyte, wherein the protective interlayer material and precursors are selected from the group consisting of active metal nitrides, active metal phosphides, and active metal halides, metal nitrides, metal phosphides, metal halides, red phosphorus, amines, phosphines, borazine ($B_3N_3H_6$), and triazine ($C_3N_3H_3$); and (b) applying an active metal to the protective interlayer material or precursor for the protective interlayer material on the polymer electrolyte. The Markush group of possible interlayer material and precursors excludes glasses or polymers as described in Chu. Thus, the present claims recite a method that is not taught by Chu and that results in a substantially different product, one that has a full protective interlayer from the materials recited in the Markush group, rather than a glass or polymer-based barrier layer possibly having, at best, a covalently bound stabilizing interface of such a material.

Accordingly, Chu does not anticipate the pending claims and withdrawal of the rejections under 35 U.S.C. §102(e) is respectfully requested.

Claims 23 and 33-35 were rejected under 35 U.S.C. §103(a) as being unpatentable over Chu.

As noted above, Chu paragraphs 66 and 71 describe glassy and polymeric barrier layers that may incorporate phosphorus. But this is not the same as phosphide itself. There is no teaching or suggestion in Chu of the electrode/electrolyte interlayers presently claimed. Claims 33-35, relating to some specific polymeric embodiments, have been canceled in order to simplify the issues for the present prosecution. Accordingly it is respectfully submitted that the §103 rejections are no longer applicable and their withdrawal is respectfully requested.

Conclusion

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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